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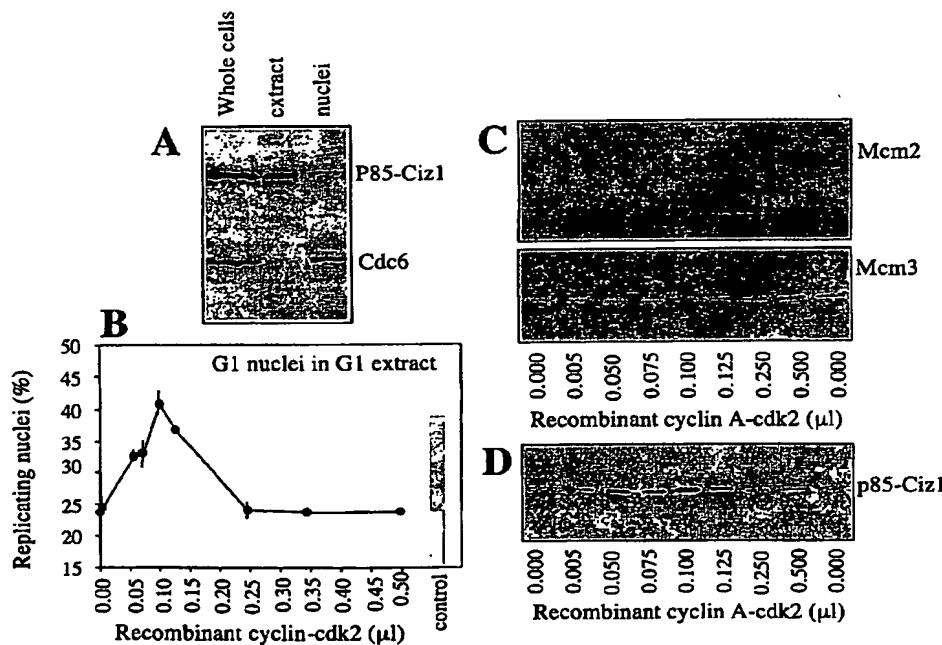
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Declaration under Rule 4.17:

— of inventorship (Rule 4.17(iv)) for US only

[Continued on next page]

(54) Title: CIZ1 REPLICATION PROTEIN



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(57) Abstract: This invention relates to a screening method for the identification of agents which modulate the activity of the CIZ1 DNA replication protein as a target for intervention in cancer therapy and includes agents which modulate said activity. The invention also relates to the use of the DNA replication protein, and its RNA transcripts in the prognosis and diagnosis of proliferative disease e.g., cancer.



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INTERNATIONAL SEARCH REPORT

International Application No
PCT/EP 03/05334

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 C12N15/09 C12N15/11 C12N15/63 C07K14/46 C12Q1/68
G01N33/53 G01N33/566

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 C12N C07K C12Q G01N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, BIOSIS, MEDLINE, EMBASE, Sequence Search, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P, X	<p>DATABASE UNIPROT EBI, HINXTON, CAMBRIDGESHIRE, U.K.; 1 March 2003 (2003-03-01), THE FANTOM CONSORTIUM & THE RIKEN GENOME EXPLORATION RESEARCH GROUP PHASE I & II TEAM: "LSFR1 protein homolog." XP002285015</p> <p>Database accession no. Q8BIT2 abstract</p> <p>& "ANALYSIS OF THE MOUSE TRANSCRIPTOME BASED ON FUNCTIONAL ANNOTATION OF 60,770 FULL-LENGTH CDNAS" NATURE, MACMILLAN JOURNALS LTD. LONDON, GB, vol. 420, no. 6915, 5 December 2002 (2002-12-05), pages 563-573, XP001165660 ISSN: 0028-0836</p> <p>-----</p> <p>-/-</p>	17, 18
P, X		17, 18

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier document but published on or after the International filing date
- "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the International filing date but later than the priority date claimed

- "T" later document published after the International filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- "X" document of particular relevance; the claimed Invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- "Y" document of particular relevance; the claimed Invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- "&" document member of the same patent family

Date of the actual completion of the international search

22 June 2004

Date of mailing of the International search report

06.09.04

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INTERNATIONAL SEARCH REPORT

Int'l Application No
PCT/GB 03/05334

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	<p>DATABASE UNIPROT EBI, HINXTON, CAMBRIDGESHIRE, U.K.; 16 October 2001 (2001-10-16), MITSUI K., ET AL.: "Cip1-interacting zinc finger protein (Nuclear protein NP94)." XP002285016 Database accession no. Q9ULV3 abstract & MITSUI KAORU ET AL: "Cloning and characterization of a novel p21 Cip1/Waf1-interacting zinc finger protein, Ciz1" BIOCHEMICAL AND BIOPHYSICAL RESEARCH COMMUNICATIONS, vol. 264, no. 2, 22 October 1999 (1999-10-22), pages 457-464, XP002285057 ISSN: 0006-291X</p> <p>-----</p>	1-9, 13-15, 17-20
X	<p>DATABASE GENESEQ EBI, HINXTON, CAMBRIDGESHIRE, U.K.; 22 October 2001 (2001-10-22), TANG YT. ET AL: "Human polypeptide SEQ ID NO 2772." XP002285017 Database accession no. AAM39627 abstract & WO 01/53312 A (CHEN RUI HONG ; GOODRICH RYLE (US); HYSEQ INC (US); WANG DUNRUI (US);) 26 July 2001 (2001-07-26) example 4; sequence 2772</p> <p>-----</p>	13-15, 17-20
X	<p>DATABASE GENESEQ EBI, HINXTON, CAMBRIDGESHIRE, U.K.; 5 February 2002 (2002-02-05), HILLMAN, JL. ET AL: "Human transcription factor TRFX-47." XP002285018 Database accession no. ABB50196 abstract & WO 01/72777 A (INCYTE GENOMICS INC ; PATTERSON CHANDRA (US); AZIMZAI YALDA (US); MATH) 4 October 2001 (2001-10-04) page 191 - page 193; claim 1</p> <p>-----</p>	13-15, 17-20
X	<p>DATABASE GENESEQ EBI, HINXTON, CAMBRIDGESHIRE, U.K.; 8 February 2001 (2001-02-08), SHIMKETS RA, LEACH M: "Human ORFX ORF3109 polynucleotide sequence SEQ ID NO:6217." XP002285019 Database accession no. AAC77554 abstract</p> <p>-/-</p>	13-15, 17-20

INTERNATIONAL SEARCH REPORT

Int'l Application No
PCT/ 03/05334

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	& WO 00/58473 A (CURAGEN CORP ; LEACH MARTIN (US); SHIMKETS RICHARD A (US)) 5 October 2000 (2000-10-05) page 5401 – page 5402; claim 5; sequence 6217 -----	
X	WO 01/70979 A (MILLENNIUM PREDICTIVE MEDICINE) 27 September 2001 (2001-09-27) sequence 19627 -----	13-15, 17-20
X	DATABASE UNIPROT EBI, HINXTON, CAMBRIDGESHIRE, U.K.; 1 March 2002 (2002-03-01), STRAUSBERG R.: "Hypothetical protein (CIZ1)." XP002285020 Database accession no. Q8VEH2 abstract -----	13-15, 17,18
X	DATABASE EMBL EBI, HINXTON, CAMBRIDGESHIRE, U.K.; 10 December 2001 (2001-12-10), STRAUSBERG R.L. ET AL: "Mus musculus CDKN1A interacting zinc finger protein 1, mRNA (cDNA clone MGC:27988 IMAGE:3597692), complete cds." XP002285021 Database accession no. BC018483 abstract -----	13-15, 17,18

INTERNATIONAL SEARCH REPORT

application No.
GB 03/05334

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.: because they relate to subject matter not required to be searched by this Authority, namely:
Although claims 19, 20 (insofar as *in vivo* methods are concerned) and 27 are directed to a method of treatment or diagnosis of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.
2. Claims Nos.: 10-12, 13(a), 21-29 because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. Claims Nos.: because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-15, 17-29

Remark on Protest

The additional search fees were accompanied by the applicant's protest.
 No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.1

Although claims 19, 20 (insofar as *in vivo* methods are concerned) and 27 are directed to a method of treatment or diagnosis of the human/animal body, the search has been carried out and based on the alleged effects of the compound/composition.

Continuation of Box I.2

Claims Nos.: 10-12, 13(a), 21-29

The application contains two claim 13's. For the purpose of the search these claims have been referred to as claims 13(a) and 13(b) respectively.

Claims 10-12, 13(a) (except for the references to nucleic acids and antibodies) and 21-29 refer to agents without giving a true technical characterisation of said agents. Said claims cover all agents having this characteristic or property, whereas the application provides support within the meaning of Article 6 PCT and disclosure within the meaning of Article 5 PCT for only a very limited number of such agents. In the present case, said claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible.

Independent of the above reasoning, said claims also lack clarity (Article 6 PCT). An attempt is made to define the agent by reference to a result to be achieved. Again, this lack of clarity in the present case is such as to render a meaningful search over the whole of the claimed scope impossible. Consequently, the search has been carried out for those parts of the claims which appear to be clear, supported and disclosed, namely the parts relating to antibodies and nucleic acid molecules which specifically bind to the CIZ1 polypeptide and polynucleotide.

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guideline C-VI, 8.5), should the problems which led to the Article 17(2) declaration be overcome.

INTERNATIONAL SEARCH REPORT

Int'l Application No
PCT/03/05334

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
WO 0153312	A 26-07-2001	US 6569662 B1		27-05-2003
		AU 2292401 A		31-07-2001
		AU 2591801 A		31-07-2001
		AU 2593601 A		31-07-2001
		AU 2595501 A		31-07-2001
		AU 2596501 A		31-07-2001
		AU 2598301 A		31-07-2001
		AU 2728401 A		31-07-2001
		AU 2734401 A		31-07-2001
		AU 2734801 A		31-07-2001
		AU 2738501 A		31-07-2001
		AU 3265701 A		31-07-2001
		CA 2395443 A1		26-07-2001
		CA 2395731 A1		26-07-2001
		CA 2395736 A1		26-07-2001
		CA 2395749 A1		26-07-2001
		CA 2395763 A1		26-07-2001
		CA 2395770 A1		26-07-2001
		CA 2402563 A1		26-07-2001
		EP 1242596 A1		25-09-2002
		EP 1240178 A2		18-09-2002
		EP 1242580 A1		25-09-2002
		EP 1242443 A1		25-09-2002
		EP 1250346 A2		23-10-2002
		EP 1254256 A2		06-11-2002
		EP 1248848 A1		16-10-2002
		JP 2004508804 T		25-03-2004
		JP 2004515206 T		27-05-2004
		WO 0153312 A1		26-07-2001
		WO 0153453 A2		26-07-2001
		WO 0153326 A1		26-07-2001
		WO 0153454 A2		26-07-2001
		WO 0153455 A2		26-07-2001
		WO 0153456 A2		26-07-2001
		WO 0153466 A1		26-07-2001
		WO 0152616 A2		26-07-2001
		WO 0153500 A1		26-07-2001
		WO 0153515 A1		26-07-2001
		WO 0153485 A1		26-07-2001
		US 2003104529 A1		05-06-2003
		US 2004048249 A1		11-03-2004
		US 2003219744 A1		27-11-2003
		US 2003211987 A1		13-11-2003
		US 2003224379 A1		04-12-2003
		US 2004022786 A1		05-02-2004
		US 2004023870 A1		05-02-2004
		US 6586390 B1		01-07-2003
		US 6465620 B1		15-10-2002
		US 2002146692 A1		10-10-2002
		US 6667391 B1		23-12-2003
WO 0172777	A 04-10-2001	AU 4364201 A		08-10-2001
		CA 2402735 A1		04-10-2001
		EP 1266001 A2		18-12-2002
		JP 2004500114 T		08-01-2004
		WO 0172777 A2		04-10-2001
WO 0058473	A 05-10-2000	AU 3774500 A		16-10-2000

INTERNATIONAL SEARCH REPORTInternational Application No
PCT/03/05334

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
WO 0058473	A	CA	2383592 A1	05-10-2000
		EP	1165784 A2	02-01-2002
		JP	2004507202 T	11-03-2004
		WO	0058473 A2	05-10-2000
		US	2003198953 A1	23-10-2003
WO 0170979	A	27-09-2001	AU 4592601 A	03-10-2001
			WO 0170979 A2	27-09-2001
			US 2003165831 A1	04-09-2003